REMARKS

Applicants have amended claim 6 to correct the antecedent. Applicants have amended other claims to better define the invention. Applicants have amended the specification to correct minor errors and to conform terminology of the specification to the amended claims. A petition to extend time for one month is enclosed

All of the claims were rejected over Wanthal with various combinations of references. While Applicants submitted Wanthal in an Information Disclosure Statement, Applicants submit that Wanthal is not prior art because it has not been made available to the public. The Wanthal technical paper was presented at a closed session of a conference that could be attended only by a select group of people associated with defense contractors. No copies of the paper were given out at the conference. The paper is not accessible on any databases and is not available by contacting the Society for Advancement of Material and Process Engineering. Applicants had a copy because one the of the co-authors is an employee of the assignee of this application. Therefore, respectfully request the Examiner to withdraw Wanthal as a reference.

Owens discloses a method of testing a 3-D woven preform. The metallic core shown in Figure 1 is bonded by a film adhesive to the preform. The metallic core shown is employed in the testing and is not tooling that is subsequently removed to provide a clevis. Because of the legend "film adhesive" in Figure 1, one skilled in the art would realize that the resin of the 3-D woven preform is being cured and the perform bonded by the film adhesive to the web simultaneously. A film adhesive requires pressure to best work, and the pressure would have to be exerted from the outer sides of the legs against the metal core. In order to exert the pressure, the legs of the perform would have to be flexible, and thus uncured. Consequently, the curing of the perform takes place while the film adhesive is bonding the legs to the metallic core.

If the perform of Figure 1 of Owens was pre-cured, then an adhesive paste would be used to bond the metallic core to the perform rather than a film adhesive. Adhesive paste can be thicker than a film adhesive and typically does not require outside pressure against the legs to form a bond. Figure 7 shows a web of 2-D material located within a slot of a preform, but provides no explanation of whether or how it is attached to the preform. There is no discussion in the paper of how any the specimens are formed.

Applicants' invention is for use when it is not feasible to cure the preform while simultaneously bonding it with a film adhesive to a web located between the legs. This might occur, for example when two halves of a wing assembly are being bonded together. One half contains a perform with a clevis while the other half has a web. In such a case, there is no access to the perform and the web when the halves are positioned together. There isn't a way to vacuum bag the perform and the web when the two halves are being bonded together so as to provide the desired amount of pressure for curing and bonding.

Applicants' claim 1 requires inserting a sizing tool between the legs and curing the resin while the tool is located between the legs to define the slot. It then requires removing the tool and applying an adhesive into the slot. The claim then requires inserting the second component into the slot to bond the second component to the preform. Consequently, the preform is already cured before it is adhered to the second component. Owens does not disclose a pre-cured preform, rather Owens suggests placing the second component between the legs of the preform and bonding and curing the preform simultaneously.

Köhler does not disclose a woven preform. Referring to Figure 4, flange 1 is formed by pultrusion. Flange 1 is made up of unidirectional filaments and resin and is drawn and cured in

the configuration of a clevis. This procedure is discussed in the specification such as at column 4, lines 60-68. There is no discussion of attaching flange 1 to a first component. Claim 1 requires adhering a base of a woven preform to a first component, then inserting a sizing tool between the legs and curing the resin of the preform while the tool is located between the legs to define a slot, then removing the tool. Köhler does not suggest using a sizing tool, rather teaches to form flange 1 formed by a die in a pultrusion process. Web 2 is not a sizing tool that is removed after flange 1 is formed. Rather web 2 is bonded to flange 1 with an adhesive 4.

One would not combine Owens and Köhler because Owens deals with testing the strength of a woven preform that is located between first and second components. Köhler, on the other hand, teaches pultruding a flange and attaching a web to the flange. Neither reference suggests curing a woven preform while having a sizing tool located between the legs, then removing the sizing tool.

Seemann, cited in paragraph 6 of the office action, teaches a peel ply and vacuum curing procedures. Peel ply 7 is located on the exterior of the composite member being formed by a vacuum process. There is no suggestion of using a peel ply between a sizing tool and the inside surfaces of legs of a woven preform.

Claim 2 depends from claim 1, requiring a film adhesive 27 between first component 15 and preform base 17. The references do not suggest placing a film adhesive between an uncured preform and a first component and placing a sizing tool between legs of the preform, then curing the preform while simultaneously bonding it to the first component. Claim 3 deals with the peel ply located within the slot and is not shown in the references as previously mentioned.

Claim 5 deals with over-presses, which are the members 41 shown in Figure 1. Members 41 are generally triangular in shape, although the outer side is somewhat concave in the preferred embodiment. This results in an application of force to the corner between base 17 and each leg 21 to avoid excess resin in that area.

The examiner cited Jonas for disclosing over-presses. The over-presses in Jonas are not utilized to press a base of a preform against a first component and press legs of the perform against a sizing tool. Also, the over-presses of Jonas are rectangular in cross-section, not triangular, thus would not direct a force toward the corner on the outer side as required by this claim.

Claim 10 depends from claim 1, specifying that the sizing tool has a greater width than the second component, providing a clearance for the adhesive in the slot. The references do not show the use of a sizing tool as previously discussed. In Köhler, flange 1 is formed by a pultrusion process, not by a sizing tool. In Owens, there is no suggestion of using a sizing tool to form the clevis.

Claim 12 is an independent claim that requires inserting a sizing tool between the legs of a woven preform and curing the resin and bonding the perform to the first component while the tool is located between the legs to define a slot. The references do not show a sizing tool for forming a clevis. Nor do the references show a sizing tool being utilized to form a clevis while simultaneously bonding the preform to the first component. The claim also requires after removing the sizing tool, applying a paste adhesive to the slot, then inserting the second component into the slot for bonding by the paste adhesive.

Owens discloses nothing concerning a sizing tool. Owens discloses the use of a film adhesive between the legs and the metal core member, which implies that the woven preform is being cured while the film adhesive is simultaneously bonding the core to the preform. The metallic core could thus not be a sizing tool. While Köhler discloses the use of a paste adhesive, Köhler does not suggest the use of a woven preform wherein a sizing tool was utilized to form the clevis. Claim 12 has similar dependent claims to those discussed above.

Claim 18 has many of the requirements discussed above. It requires adhering the base of the preform to the first component, which is a procured composite member. It requires inserting a tool between the legs then placing over-presses against outer surfaces of the base in the legs. It requires placing the first component, preform, over-presses and the tool within a vacuum bag and curing the resin film. It requires removing the tool and applying a paste adhesive into the clevis. It requires inserting a second component into the clevis and bonding the second component to the clevis, the second component being a composite member that is precured.

It is respectfully submitted that the claims are now in condition for allowance and favorable action is respectfully requested.

Respectfully submitted,

James E. Bradley

James E. Bradley
Reg. No. 27,536
Attorney for Applicants

Date: July 7, 2003

BRACEWELL & PATTERSON, L.L.P.
P. O. Box 61389
Houston, Texas 77208 1389
Tel.: (713) 221-3301
Fax: (713) 222-3287